CLAIMS

What is claimed is:

1. A valve assembly for use in a well, comprising:

a valve member defining a plurality of fluid inlet orifices; and

a sleeve axially moveable to selectively permit and prevent flow of fluid through selected fluid inlet orifices of the plurality of fluid inlet orifices.

2. The valve assembly as recited in claim 1, further comprising:

a sealing member disposed between the valve member and the sleeve, wherein the plurality of fluid inlet orifices are spaced axially along the valve member, the sleeve being selectively moveable to a plurality of defined positions, further wherein at each of the plurality of defined positions the sealing member is positioned at a location between adjacent fluid inlet orifices.

3. The valve assembly as recited in claim 1, wherein the sealing member comprises a deformable seal between a valve seat and the valve member.

4. The valve assembly as recited in claim 3, wherein the deformable seal comprises PEEK.

5. The valve assembly as recited in claim 1, wherein the sealing member comprises a sliding seal between the valve member and the sleeve.

6. The valve assembly as recited in claim 1, wherein the sliding seal comprises PEEK.

7. The valve assembly as recited in claim 1, wherein the sealing member comprises a valve seat, the valve seat comprising a material from a group consisting of polycrystalline diamond, vapor deposition diamond, ceramic, hardened steel, tungsten carbide and carbide.

8. The valve assembly as recited in claim 1, further comprising:

a valve seat comprising a material having a hardness of at least 1,200 knoops.

9. The valve assembly as recited in claim 1, further comprising:

an orifice insert positioned in the at least one fluid inlet orifice, the orifice insert having a passageway therethrough.

10. The valve assembly as recited in claim 9, wherein the orifice insert comprises a material from a group consisting of polycrystalline diamond, vapor deposition diamond, ceramic, hardened steel, tungsten carbide and carbide.

11. The valve assembly as recited in claim 9, wherein the orifice insert comprises a material having a hardness of at least 1,200 knoops.

12. The valve assembly as recited in claim 1, wherein the sleeve comprises a material from the group consisting of polycrystalline diamond, vapor deposition diamond, ceramic, hardened steel, tungsten carbide, and carbide.

13. The valve assembly as recited in claim 1, wherein at least a portion of the sleeve is coated with a material comprising a material from the group consisting of polycrystalline diamond, vapor deposition diamond, ceramic, hardened steel, tungsten carbide, and carbide.

14. A valve assembly for use in a well, comprising:

an outer housing;

an inner housing disposed within the outer housing, the inner housing having a hollow interior, and one of the outer housing and the inner housing having a plurality of radial flow passages; and

a sealing device disposed between the inner housing and the outer housing,

wherein the outer housing and the inner housing may be axially moved relative to each other to expose selected configurations of the radial flow passages to control fluid flow therethrough without directly exposing the sealing device to the fluid flow.

15. The valve assembly as recited in claim 14, wherein the outer housing is moveable relative to the inner housing.

16. The valve assembly as recited in claim 14, wherein the inner housing is moveable relative to the outer housing.

17. The valve assembly as recited in claim 14, wherein the sealing device comprises a sliding seal.

18. The valve assembly as recited in claim 17, wherein the sliding seal comprises a valve seat, the valve seat comprising a material from a group consisting of polycrystalline diamond, vapor deposition diamond, ceramic, hardened steel, tungsten carbide and carbide.

19. The valve assembly as recited in claim 18, further comprising a deformable seal disposed between the inner housing and the outer housing.

20. The valve assembly as recited in claim 19, wherein the deformable seal comprises PEEK.

21. The valve assembly as recited in claim 17, further comprising a valve seat having a hardness of at least 1,200 knoops.

22. The valve assembly as recited in claim 14, further comprising:

an orifice insert disposed within at least one opening through which fluid flows, the orifice insert having a passageway therethrough.

23. The valve assembly as recited in claim 22, wherein the orifice insert comprises a layer of material disposed within at least one opening.

24. The valve assembly as recited in claim 22, wherein the orifice insert comprises a material from a group consisting of polycrystalline diamond, vapor deposition diamond, ceramic, hardened steel, tungsten carbide and carbide.

25. The valve assembly as recited in claim 22, wherein the orifice insert comprises a material having a hardness of at least 1,200 knoops.

26. The valve assembly as recited in claim 22, wherein the orifice insert comprises tungsten carbide.

27. The valve assembly as recited in claim 22, wherein the orifice insert comprises diamond.

28. The valve assembly as recited in claim 14, wherein the inner housing comprises a material from the group consisting of polycrystalline diamond, vapor deposition diamond, ceramic, hardened steel, tungsten carbide, and carbide.

29. The valve assembly as recited in claim 14, wherein the outer housing comprises a material from the group consisting of polycrystalline diamond, vapor deposition diamond, ceramic, hardened steel, tungsten carbide, and carbide.

30. A method of operating a valve assembly, comprising:

forming a valve assembly having an outer housing and an inner housing, a sealing device therebetween, and a plurality of flow passages in at least one of the inner housing and the outer housing;

deploying the valve assembly into a well; and

operating the valve assembly to selectively establish the relative position of the inner housing and the outer housing to expose a desired number of flow passages to fluid flow therethrough.

31. The method as recited in claim 30, wherein forming comprises configuring a flow passage with a generally circular shape.

32. The method as recited in claim 31, wherein forming comprises configuring a flow passage with a protective insert

33. The method as recited in claim 32, wherein forming comprises configuring a protective insert with a material having a hardness of at least 1,200 knoops.

34. The method as recited in claim 32, wherein forming comprises configuring a protective insert with tungsten carbide.

35. The method as recited in claim 32, wherein forming comprises configuring one of the inner housing and outer housing with a material having a hardness of at least 1,200 knoops.

36. The method as recited in claim 30, wherein operating the valve assembly comprises engaging a deformable seal with a choke stop when the valve assembly is in a closed position.

37. The method as recited in claim 36, wherein forming comprises configuring the deformable seal with PEEK.

38. A system for controlling fluid flow from a wellbore, comprising:

a valve assembly having:

a valve member defining a plurality of fluid inlet orifices;

a sleeve moveable to permit and prevent flow of fluid through selected ones of the plurality of fluid inlet orifices;

a drive mechanism operable to position the sleeve relative to the valve; and

tubing fluidicly coupled to the valve assembly for conveying fluid to a surface location.

39. The system as recited in claim 38, comprising a protective insert disposed within a fluid inlet orifice.

40. The system as recited in claim 38, further comprising a sealing member disposed between the valve member and the sleeve, wherein the plurality of fluid inlet orifices are spaced axially along the valve member, the sleeve being selectively moveable to a plurality of defined positions, further wherein at each of the plurality of defined positions the sealing member forms a seal at a location between adjacent fluid inlet orifices.

41. The system as recited in claim 38, wherein the valve assembly is configured to form a seal generally at a midpoint between adjacent fluid inlet orifices.

42. The system as recited in claim 41, wherein the adjacent fluid inlet orifices are spaced axially to minimize flow damage to the seal.

43. The system as recited in claim 38, wherein the drive mechanism is controlled by hydraulic pressure.

44. The system as recited in claim 38, wherein each fluid inlet orifice is generally circular.

45. The system as recited in claim 39, wherein a protective insert is configured with a material having a hardness of at least 1,200 knoops.

46. The system as recited in claim 39, wherein a protective insert comprises tungsten carbide.

47. The system as recited in claim 39, wherein a fluid inlet orifice is configured with a layer of material having a hardness of 1,200 knoops.

48. The system as recited in claim 39, wherein a fluid inlet orifice is configured with a layer of tungsten carbide.

49. A valve assembly for controlling fluid flow, comprising:

a housing having at least one inlet orifice; and

a protective insert disposed in the at least one inlet orifice to protect the at least one inlet orifice from erosion.

50. The valve assembly as recited in claim 49, wherein the protective insert comprises an erosion-resistant material.

51. The valve assembly as recited in claim 49, wherein the protective insert comprises a layer of erosion-resistant material.

52. The device as recited in claim 49, wherein the erosion resistant material comprises tungsten carbide.

53. The device as recited in claim 49, wherein the erosion resistant material comprises a material having a hardness of 1,200 knoops.